Massachusetts Genetic Bill of Rights:  
Chipping Away at Genetic Privacy

“[T]he privacy and dignity of our citizens is being whittled away by 
sometimes imperceptible steps.  Taken individually, each step may be of little 
consequence.  But when viewed as a whole, there begins to emerge a society 
quite unlike any we have seen—a society in which government may intrude into 
the secret regions of man’s life at will.”

I.  INTRODUCTION

The average human loses between forty and one hundred strands of hair 
every day.2  Humans make one liter of saliva each day.3  In a lifetime, the 
average human sheds about forty pounds of skin.4  Hair, skin, and saliva are 
just a few ways in which individuals leave behind traces of their identity in the 
form of deoxyribonucleic acid (DNA).5  DNA has become an irrefutable 
method for identifying a person.6  In essence, humans are constantly leaving 
traces of their identity everywhere they go.7

In the past decade, DNA has transformed criminal procedure jurisprudence.8  
Law enforcement officers and prosecutors now rely heavily on DNA to solve

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4. See SCIENCE FACTS, supra note 2 (stating body facts about human skin).
5. See Robert C. Green & George J. Annas, The Genetic Privacy of Presidential Candidates, 359 NEW 
   (describing ease of obtaining genetic information).  “Sufficient DNA for amplification and analysis can 
   be obtained from loose hairs, coffee cups, discarded utensils, or even a handshake.”  Id. at 2192.
6. See Martinez v. State, 549 So. 2d 694, 695 (Fla. 1989) (summarizing admissibility of DNA evidence 
   at trial to prove identity).  Courts generally admit DNA evidence to prove identification based on the principle 
   that no two people share exactly the same genetic code.  Id.; see also Commonwealth v. Lanigan, 641 N.E.2d 
   1342, 1350 (Mass. 1994) (holding expert testimony regarding probability of DNA match reliable and 
   admissible).
7. See Eriq Gardner, Gene Swipe:  Few DNA Labs Know Whether Chromosomes Are Yours or If You 
8. See Anna Stolley Persky, An Arresting Development:  Courts Split over DNA Testing for Those 
   solving).
crimes.  DNA reveals unique genetic information about an individual’s race, ethnicity, and medical risks for diseases such as breast cancer or the risk of having a child with cystic fibrosis. Access to a person’s DNA provides a dangerously intimate blueprint of a person’s body. If misused, DNA information could cause a person to be stigmatized, discriminated against, or targeted for criminal prosecution. Some scientists have even proffered the idea of a behavioral gene predisposing an individual to a tendency to commit crimes. Easy access to DNA exposes an individual’s most private and intimate information to the world.

As genetic information becomes increasingly easy to obtain, it renews the timeless debate over precisely which circumstances trigger an individual’s right to privacy. An individual’s right to be left alone has deep roots in English common law, but it continues to be the subject of contentious legal debate today. Although advancements in science and technology have many advantages, these advancements can sometimes encroach upon individual privacy rights. Unless DNA is protected by law, government access to an individual’s genetic information will greatly undermine Americans’ Fourth Amendment rights. In response to the dire need to protect an individual’s private genetic information, the Massachusetts Legislature introduced a Genetic Bill of Rights (GBR) that would establish property and privacy rights for

9. See Aaron P. Stevens, Note, Arresting Crime: Expanding the Scope of DNA Databases in America, 79 TEX. L. REV. 921, 922 (2001) (recognizing increasing role of DNA in law enforcement). DNA is “one of the most important tools in the arsenal of United States law enforcement.” Id. at 922.  
11. See Michael J. Markett, Note, Genetic Diaries: An Analysis of Privacy Protection in DNA Data Banks, 30 SUFFOLK U. L. REV. 185, 208 (1996) (highlighting extremely personal nature of genetic information). “The gene sequences encoded on one’s DNA reveal highly personal and potentially stigmatizing facts about the donor such as the donor’s and his or her family members’ predisposition to disease.” Id.  
14. See Joh, supra note 12, at 874 (describing ability of small sample of DNA to reveal individual’s entire genetic code). A skin swab for DNA is comparable to “a microchip containing an entire library’s worth of information.” Id.  
15. See id. at 862-63 (considering whether individual has Fourth Amendment expectation of privacy in “abandoned” DNA).  
17. See Suter, supra note 10, at 738 (characterizing scientific advances in DNA as both “awe inspiring and frightening”).  
18. See Persky, supra note 8, at 16 (arguing DNA deserves constitutional protections).
CHIPPING AWAY AT GENETIC PRIVACY

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This Note explores the proposed Genetic Bill of Rights—including the current proposed version’s flaws—and makes recommendations for a more effective version. Part II.A summarizes Fourth Amendment history and the basis of the constitutionally implied right to privacy. Part II.B presents different legal theories for protecting DNA. Part II.C studies and explains the proposed Massachusetts Genetic Bill of Rights. Part II.D studies the application of conflict of laws in criminal procedure. With conflict-of-laws principles as a foundation, Part III analyzes the effectiveness and validity of the proposed Genetic Bill of Rights.

II. HISTORY

A. The Fourth Amendment

1. The Origins of the Fourth Amendment

One of the most valued amendments to the United States Constitution is the Fourth Amendment, which protects the right of the people to be free from unreasonable searches and seizures by requiring law enforcement officers to obtain a warrant based on probable cause before executing a search. An understanding of the Fourth Amendment requires an appreciation of its history and origins in colonial America. The inclusion of the Fourth Amendment’s

19. See An Act to Create a Genetic Bill of Rights, S. 1080, 187th Gen. Ct. (Mass. 2011) (proposing Massachusetts protection of DNA through property and privacy rights). The legislative proposal requires consent from an individual before collecting his DNA and creates a right to privacy and property with respect to an individual’s genetic information. Id.

20. See infra Part III.A-B (analyzing flaws in current proposed GBR).

21. See infra Part II.A (discussing Fourth Amendment history and recognition of constitutional right to privacy).

22. See infra Part II.B (evaluating different legal theories for protecting genetic information).

23. See infra Part II.C (examining provisions of proposed legislation).

24. See infra Part II.D (examining approaches to resolving conflict of laws in criminal procedure).

25. See infra Part III (critiquing Massachusetts proposed GBR and suggesting provisions for ideal GBR).

26. See U.S. Const. amend. IV (guaranteeing freedom from unreasonable searches and seizures). The Fourth Amendment states:

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

Id.; see also Olmstead v. United States, 277 U.S. 438, 478 (1928) (Brandeis, J., dissenting) (recognizing Fourth Amendment most highly valued by civilized men). In Olmstead, the Court held that wiretapping private telephone conversations without a warrant does not violate the Fourth Amendment. Id. at 469. In his dissenting opinion, Justice Brandeis wrote that “the right to be let alone [is] the most comprehensive of rights and the right most valued by civilized men.” Id. at 478.

27. See Boyd v. United States, 116 U.S. 616, 630-31 (1886) (referencing historical context of Fourth
protection from unreasonable searches and seizures was largely influenced by Great Britain’s use of overly broad search warrants, warrantless searches, and writs of assistance in the 1760s. In two cases, the King authorized the ransacking of the homes of citizens charged with seditious libel, as well as the seizure of their books and papers. Another case involved British customs inspectors searching Boston merchants pursuant to blanket search warrants, known as writs of assistance, stating that the King’s agents could search anywhere smuggled goods might be found.

James Otis defended the Boston merchants and presented a speech that is credited as the inspiration for the Fourth Amendment. In his speech, Otis criticized the writs as “the worst instrument of arbitrary power,” and argued that they “placed the liberty of every man in the hands of every petty officer.”

John Adams, one of the authors of the Constitution, was profoundly influenced by Otis’s speech and stated in response: “Then and there was the first scene of the first act of opposition to the arbitrary claims of Great Britain. Then and there the child Independence was born.” This historical context behind the Fourth Amendment reveals its purpose: to safeguard against an abusive government that excessively intrudes upon an individual’s privacy.

Amendment to aid in interpretation and application). In Boyd, the Court held the government’s demanding of a man’s private papers, for use against him in court, is a search and seizure within the meaning of the Fourth Amendment. Id. at 622. Justice Bradley wrote in his opinion that the intent of the Fourth Amendment is best ascertained by examining the historical controversies that occurred in England and the colonies concerning unreasonable searches and seizures at the time the amendment was written. Id. at 624-25.

28. See Sklansky, supra note 16, at 1743, 1789-91, 1799-1800 (observing Supreme Court decisions referencing historical context of Fourth Amendment). Justices Bradley, Brandeis, and Frankfurter all relied upon instances where forms of search and seizure were condemned leading up to the American Revolution. Id.

29. See Wilkes v. Wood, (1763) 98 Eng. Rep. 489 (C.P.) 498 (condemning overly broad search warrant for defendant’s house). In Wilkes, the defendant was charged with libeling King George III in pamphlets. Id. at 490, 498. The King issued a warrant that did not list any names. Id. The defendant’s home was broken into and his private papers were seized. Id. at 491; see also Entick v. Carrington, (1765) 95 Eng. Rep. 807 (K.B.) 818 (condemning warrantless searches and seizures). In Entick, the defendant was charged with seditious libel of the King, who then ordered a search of the defendant’s home and seized his papers with an overly broad search warrant. Id. at 810. The court also noted that “half the kingdom” would likely be guilty of having libel in their private possession. Id. at 818.

30. See Joseph A. Grasso, Jr., “John Adams Made Me Do It”: Judicial Federalism, Judicial Chauvinism, and Article 14 of Massachusetts’ Declaration of Rights, 77 MISS. L.J. 315, 319-20 (2007) (describing “arbitrary power” granted by writs of assistance). The writs of assistance cases involved British customs officials who inspected ships, businesses, and homes for evidence of goods smuggled into the colonies by merchants to avoid taxes. Id. at 332-33 & n.102. The writs of assistance used by British inspectors were nothing more than general search warrants and did not require a showing of cause. Id. at n.102.

31. See id. at 319 (criticizing writs of assistance).

32. Id. (describing James Otis’s argument in legal papers).


34. See Boyd v. United States, 116 U.S. 616, 626-27 (1886) (tracing intent and purpose of Fourth Amendment). Justice Bradley stated in the Court’s opinion that Wilkes, Entick, and the writs of assistance cases were unquestionably in the minds of the framers of the Fourth Amendment to the United States Constitution. Id.
2. The Development and Application of the Fourth Amendment

It was not until 1961, when the Supreme Court ruled in *Mapp v. Ohio*\(^{35}\) that state governments are bound by the Fourth Amendment, that its protections became truly effective.\(^{36}\) Under current case law, a Fourth Amendment search occurs when a government agent gathers information where an individual has a reasonable expectation of privacy.\(^{37}\) Whether an individual’s expectation of privacy is reasonable depends on whether society is prepared to recognize it as such.\(^{38}\) A Fourth Amendment seizure occurs when a government agent exercises control over a person or thing.\(^{39}\)

If a government agent plans to conduct a Fourth Amendment search and seizure, he must first obtain a search warrant from a neutral magistrate.\(^{40}\) A valid search warrant must be based on probable cause, which requires that the officer demonstrate that under the totality of the circumstances, there is a fair probability that evidence of a crime will be found in a particular place.\(^{41}\) A

36. See id. at 655-56 (holding Fourth Amendment applies to state criminal procedure through Due Process Clause). In *Mapp*, the Court held that unconstitutionally seized evidence by state officials should be excluded as evidence in a state criminal case. Id.; see also *Elkins v. United States*, 364 U.S. 206, 223 (1960) (holding unconstitutionally obtained evidence inadmissible in federal and state courts); *Weeks v. United States*, 232 U.S. 383, 394, 399 (1914) (holding exclusionary rule applies to federal cases).
37. See *Burdeau v. McDowell*, 256 U.S. 465, 475 (1921) (holding Fourth Amendment protects only against governmental conduct). The Court in *Burdeau* held that the Fourth Amendment does not apply to evidence obtained by a private party acting independently of police direction. Id. at 476.
38. See *Katz v. United States*, 389 U.S. 347, 359 (1967) (clarifying areas subject to Fourth Amendment protection). The defendant in *Katz* used a public telephone booth to transmit illegal gambling wagers. Id. at 348. The Federal Bureau of Investigation (FBI) recorded the defendant’s conversation by placing a transmitter on the exterior of the booth. Id. The *Katz* Court held that the FBI recording was an unconstitutional search because the defendant had a reasonable expectation of privacy in his phone conversation. Id. at 359. In Justice Harlan’s concurring opinion, he explained that the reasonable expectation of privacy determination “is a twofold requirement, first that a person have exhibited an actual (subjective) expectation of privacy and, second, that the expectation be one that society is prepared to recognize as ‘reasonable.’” Id. at 361; see also *Kyllo v. United States*, 533 U.S. 27, 40 (2001) (holding use of sense enhancing technology to view inside home from exterior unconstitutional search); *Dow Chem. Co. v. United States*, 476 U.S. 227, 238-39 (1986) (holding use of powerful cameras generally available to public not search).
39. See *California v. Hodari D.*, 499 U.S. 621, 626 (1991) (determining what precisely constitutes seizure under Fourth Amendment). The Court considered whether drugs were fruits of an unlawful seizure when the defendant tossed the drugs just before the police tackled him. Id. at 623. The Court held that a seizure requires a physical application of force by an officer or a submission to an officer’s show of force. Id. at 626. The Court reasoned that there was no seizure of the drugs because the defendant tossed the crack cocaine before the officer tackled him. Id. at 625.
41. See *Gates*, 462 U.S. at 230-31 (clarifying probable cause determination as totality of circumstances test); *Spinelli v. United States*, 393 U.S. 410, 418-19 (1969) (affirming conclusory allegations not valid basis for probable cause); *Aguilar*, 378 U.S. at 112-13 (requiring search warrant to allege facts, not mere conclusions, to establish probable cause); *Carroll v. United States*, 267 U.S. 132, 161-63 (1925) (defining probable cause). The Court in *Carroll* held that officers must present sufficient underlying facts and circumstances such that a
search and seizure that does not meet the search warrant requirements will be deemed unconstitutional, and the evidence obtained will be inadmissible in the prosecution’s case.\footnote{42}

3. Massachusetts Search and Seizure Law

a. The Probable Cause Standard in Massachusetts

Massachusetts search and seizure law, as set forth in Article Fourteen of the Massachusetts Declaration of Rights, provides greater Fourth Amendment protection than the United States Constitution.\footnote{43} The Massachusetts State Constitution preceded the United States Constitution, which based several of its provisions, including the Fourth Amendment, on the Massachusetts Declaration of Rights.\footnote{44} In Massachusetts, the standard for establishing probable cause for a search warrant is not as flexible and fluid as the federal standard.\footnote{45} The federal standard for proving probable cause, referred to as the \textit{Gates} test, is a “totality of the circumstances” test.\footnote{46} In contrast, the Massachusetts standard for showing probable cause—referred to as the \textit{Aguilar-Spinelli} test—is a two-prong test that requires a showing of a basis of knowledge for the underlying facts and proof that the information is credible and reliable.\footnote{47}

Every subject has a right to be secure from all unreasonable searches, and seizures, of his person, his houses, his papers, and all his possessions. All warrants, therefore, are contrary to this right, if the cause or foundation of them be not previously supported by oath or affirmation; and if the order in the warrant to a civil officer, to make search in suspected places, or to arrest one or more suspected persons, or to seize their property, be not accompanied with a special designation of the persons or objects of search, arrest, or seizure; and no warrant ought to be issued but in cases, and with the formalities prescribed by the laws.

\textit{Id.}; see also \textit{Commonwealth v. Upton}, 476 N.E.2d 548, 555 (Mass. 1985) (holding Massachusetts Declaration of Rights provides more substantive protection to criminal defendants than Fourth Amendment).\footnote{44}

\textit{See \textit{Upton}}, 476 N.E.2d at 555 (pointing to Massachusetts Declaration of Rights as model for United States Constitution).\footnote{45}

\textit{See id.} at 556 (rejecting \textit{Gates} test and upholding \textit{Aguilar-Spinelli} test for probable cause). The court in \textit{Upton} rejected the “totality of the circumstances” test, as the Supreme Court ruled in \textit{Gates}, and criticized the \textit{Gates} test because it is flexible and “unacceptably shapeless and permissive.” The Federal test lacks the precision that we believe can and should be articulated in stating a test for determining probable cause.” \textit{Id.} (internal citations omitted).\footnote{46}


\textit{See \textit{Upton}}, 476 N.E.2d at 557 (describing application of \textit{Aguilar-Spinelli} test in probable cause
b. The Expectation of Privacy in Massachusetts

Despite the different state and federal standards for determining probable cause, the Massachusetts standard for recognizing an expectation of privacy is the same as the federal standard, which requires that an individual have a subjective expectation of privacy and that his expectation of privacy be one that society is willing to recognize as objectively reasonable.\(^48\) In regard to the subjective component, the Supreme Judicial Court of Massachusetts has ruled that there is no subjective expectation of privacy in abandoned property, such as discarded cigarette butts and a water bottle in a police interview room, because the individual did not show a subjective expectation of privacy by not attempting to take the items with him at the end of the interview.\(^49\) The most debatable aspect of the expectation of privacy is determining exactly what circumstances give rise to an objective expectation of privacy that society is prepared to recognize.\(^50\) Massachusetts case law suggests several factors to be considered, such as the type of location, the level of the defendant’s ownership in the location, the precautions, or lack thereof, taken to protect privacy, and the nature of the intrusion.\(^51\) Despite the varying and sometimes confusing case law regarding where a person has an objective expectation of privacy, the United States Constitution and state case law are very clear that the home, unequivocally, has a reasonable expectation of privacy and is protected from unreasonable searches and seizures.\(^52\)

c. DNA Treatment Under Massachusetts Law

Massachusetts law compels any person convicted of a felony to submit a DNA sample, which becomes part of a state DNA database.\(^53\) The primary
purpose of the DNA database is to help law enforcement identify criminals in order to solve future cases. Although the extraction of DNA is considered a search under the Fourth Amendment and Article Fourteen, the Supreme Judicial Court of Massachusetts ruled the extraction of DNA from a convicted felon is reasonable because felons have a diminished expectation of privacy, and the state has a strong interest in improving methods to identify criminals.

In addition to convicted felons, Massachusetts law allows law enforcement officials to compel a DNA blood sample from an individual, but the required evidentiary standard to do so varies depending on the stage of the investigation. For a person not convicted of a felony, and not yet indicted, a judge can issue a warrant to extract that individual’s DNA if there is probable cause to believe that he committed a crime and his blood will aid in solving the crime. The evidentiary standard in the postindictment stage of a criminal case requires a warrant to obtain a blood sample upon the Commonwealth’s showing that the defendant’s DNA will probably produce evidence relevant to his guilt.

In contrast to the pre- and post-indictment evidentiary standards, the standard for a grand jury to compel a criminal defendant to submit a DNA sample is much easier to meet. The grand jury must have a reasonable basis appeal or motion for a new trial. Id.  

54. See Markett, supra note 11, at 189-90 (explaining general purpose of DNA database). Forensics identify specific characteristics in a DNA sample, which are referred to as a DNA profile. Id. at 189. The DNA profiles are then stored in a computer database accessible by law enforcement agencies. Id.  

55. See U.S. CONST. amend. IV (outlining framework for protection from unreasonable searches and seizures for all citizens); MASS. CONST. pt. 1, art. XIV (granting Massachusetts citizens freedom from unlawful searches and seizures); see also Landry v. Att’y Gen., 709 N.E.2d 1085, 1090 (Mass. 1999) (stating DNA extraction constitutes Fourth Amendment search and seizure). The court in Landry held that although DNA extraction is a Fourth Amendment search and seizure, it is reasonable because convicted felons have a high rate of recidivism, and the government has a strong interest in identifying convicts for future criminal investigations. Id. at 1090-91; see also Jones v. Murray, 962 F.2d 302, 306 (4th Cir. 1992) (holding convicted felons have diminished expectation of privacy). Convicted felons have a diminished expectation of privacy because probable cause has already been established when a convict is brought into the criminal justice system, thus reducing the expectation of privacy. Jones, 962 F.2d at 306.  


57. See In re Lavigne, 641 N.E.2d at 1331 (explaining factors weighed to establish probable cause to extract DNA from criminal suspect). This test balances: “the seriousness of the crime, the importance of the evidence to the investigation and the unavailability of less intrusive means of obtaining it, on the one hand, against concern for the suspect’s constitutional right to be free from bodily intrusion on the other.” Id.  

58. See Trigones, 492 N.E.2d at 1151 (applying postindictment standard for extracting DNA sample); see also Commonwealth v. Maxwell, 808 N.E.2d 806, 811 (Mass. 2004) (providing standard for extracting DNA sample after issuance of criminal complaint). The standard for extracting DNA is the same either postindictment or after a criminal complaint has been issued. Id.  

59. See In re Grand Jury Investigation, 692 N.E.2d at 59-60 (explaining grand jury DNA request requires lower probability level than pre- or postindictment). A grand jury does not have to demonstrate the same level of probable cause required for an arrest because probable cause already existed in order to indict the criminal
for believing that the defendant’s DNA will significantly aid in their investigation. The grand jury’s request must be reasonable in light of the circumstances, which is a lower standard than the Aguilar-Spinelli test. In addition to these approaches to obtaining an individual’s DNA, the most common and simplest method used by law enforcement is obtaining an individual’s discarded property without his consent and testing it for DNA. Currently, Massachusetts does not have a statute making it unlawful to obtain a person’s DNA without his consent, but that could change very soon.

B. Theories for Protecting DNA

In response to the increased use of DNA in criminal procedure, legal scholars and legislators propose protecting an individual’s genetic information by granting an individual property rights in his DNA. Proponents of this
theory often recommend two different property regimes for treating DNA as property: intangible property or intellectual property. Despite the push to create property rights in DNA, other legal scholars contend that privacy rights would actually protect DNA better than property rights. Property rights and privacy rights offer fundamentally different protections. In deciding whether to use property law or privacy law to protect DNA, legislators should carefully consider the advantages and shortcomings of each approach.

1. Granting DNA Property Rights—Is DNA Property?

Granting DNA property rights is a highly desirable approach to protecting DNA, because the right to own property is a fundamental right expressed in both the Fifth and Fourteenth Amendments of the United States Constitution. John Locke described the crucial role of property rights in modern civilization as the reason why men enter into society—so that they can preserve their property. As ownership is an important concept in American society, property rights in the United States are protected by some of the most robust laws.

The legal definition of property does not describe property in terms of a
physical object but rather as a combination of rights, often referred to as a bundle of sticks, with each stick representing a substantive right, such as the rights to possess, to use, and to alienate. Ownership is established when an individual has one or more of these substantive rights. The bundle of sticks analysis is a paradigm used to determine whether particular things could effectively be treated as property.

Wesley Newcomb Hohfeld elaborated on the definition of property by defining these substantive rights in terms of legal relations between parties. Hohfeld describes four distinct legal relations: rights, privileges, powers, and immunities. Each of these legal relations has both correlative and opposite features. The correlative aspect of a legal relation describes the legal position of the owner of property at one end of the stick, and everyone else who is not the owner at the other end of the stick. For example, a legal right created in

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73. See Property, supra note 72, § 1 (characterizing ownership in property as collection of rights).

74. See Catherine M. Valerio Barrad, Genetic Information and Property Theory, 87 NW. U. L. REV. 1037, 1048-49 (1993) (listing different interests in property used to determine whether ownership in property exists). Property rights assert a right to possess, control, enjoy, transfer, alienate, and devise. Id.; see also J.E. Penner, The "Bundle of Rights" Picture of Property, 43 UCLA L. REV. 711, 712 (1996) (explaining Anglo-American legal philosophy of property). Penner offers the example of the legal relationship between an individual and his car. See Penner, supra. Ownership does not arise from the relationship between the individual and his car; it is rather a myriad of personal rights that the owner holds against others that prevent them from stealing or damaging the car. Id.

75. See Hohfeld, supra note 72, at 742-43, 746-47 (analyzing nature of property ownership). Hohfeld opposes the traditional idea of property law that focuses on a single right. Id. at 742. Instead, Hohfeld asserts a paradigm that recognizes that ownership in property consists of several separate and distinct rights. Id.; see also Valerio Barrad, supra note 74, at 1048-49 (describing characteristics of ownership in property).

76. See Hohfeld, supra note 72, at 746-47 (explaining multiple legal interests in property); Valerio Barrad, supra note 74, at 1057-58 (describing "Hohfeldian framework" creating legal interest in property); infra note 82 and accompanying text (defining interest and ownership); see also RESTATEMENT (FIRST) OF PROP. §§ 1-5 (1936) (defining right, privilege, power, immunity, and interest as terms relating to ownership in property). “Right” is defined as “a legally enforceable claim of one person against another, that the other shall do a given act or shall not do a given act.” RESTATEMENT (FIRST) OF PROP. § 1 (1936). “Privilege” is defined as “a legal freedom on the part of one person as against another to do a given act or a legal freedom not to do a given act.” Id. § 2. “Power” is defined as “an ability on the part of a person to produce a change in a given legal relation by doing or not doing a given act.” Id. § 3. “Immunity” is defined as “a freedom on the part of one person against having a given legal relation altered by a given act or omission to act on the part of another person.” Id. § 4.

77. See Hohfeld, supra note 72, at 717-21 (elaborating on theory of property as legal relations); see also Valerio Barrad, supra note 74, at 1055-58 (noting Hohfeld’s correlatives and opposites analysis as foundation of American property law).

78. See Hohfeld, supra note 72, at 718-20 (offering examples of correlative rights and duties); see also Wesley Newcomb Hohfeld, Some Fundamental Legal Conceptions as Applied in Judicial Reasoning, 23 YALE L.J. 16, 30 (1913) [hereinafter Hohfeld, Some Fundamentals] (describing application of correlative rights and duties). Hohfeld explains correlative rights with the following example: “[I]f X has a right against Y that he shall stay off the former’s land, the correlative (and equivalent) is that Y is under a duty toward X to stay off
one person—meaning he has an affirmative claim against another—creates a correlative duty in the other person to respect that right.\footnote{See Hohfeld, Some Fundamentals, supra, at 32; see also Valerio Barrad, supra note 74, at 1055-56 (outlining Hohfeld’s theory of correlative duties and rights).}

Unlike the correlative aspect of legal relations that coexist, Hohfeld describes the opposite feature of legal relations in property as rights that cannot possibly coexist.\footnote{See Hohfeld, supra note 72, at 718-19 (offering examples of correlative duties and rights in property); see also Valerio Barrad, supra note 74, at 1055-57 (explaining correlatives in legal relationship between owner of property and everyone else).} For example, when an individual has legal immunity, meaning that he is exempt from liability, he cannot also be liable for that same legal relation.\footnote{See Hohfeld, supra note 72, at 718-20 (offering example of opposite feature of legal relations in property); see also Valerio Barrad, supra note 74, at 1057 (clarifying difference between opposites and correlatives in legal relations in property).} Thus, under the Hohfeldian paradigm of legal relations, ownership arises when an individual can establish that he has the correlative and opposite legal relationships with regard to any combination of the sticks.\footnote{See RESTATEMENT (FIRST) OF PROP. §§ 5, 10 (1936) (defining terms “interest” and “owner” in property). The Restatement defines “interest” as “varying aggregates of rights, privileges, powers and immunities and distributively [means] any one of them.” Id. § 5. The Restatement defines “owner” as meaning “the person who has one or more interests.” Id. § 10; see also Valerio Barrad, supra note 74, at 1057-58 (defining legal interest in property under Hohfeldian framework).}

Even though DNA is capable of being treated as property according to the Hohfeldian analysis, “[t]he law shies away from according protection to vagueness.”\footnote{See Hamilton Nat’l Bank v. Belt, 210 F.2d 706, 708 (D.C. Cir. 1953) (considering property protection over nonconcrete ideas). In Hamilton National Bank, Lloyd Belt sued Hamilton National Bank for appropriating his idea for a radio show. Id. at 707. Ultimately, the court held that the idea for the radio show was concrete enough to be afforded property rights because the plaintiff had a detailed plan. Id. at 709.} Most people, even scientists, still have only a vague understanding of the significance and function of DNA, leaving much to be discovered.\footnote{See Suter, supra note 10, at 738-39 (observing science of DNA still in “infancy”). “[E]very day we learn more about the important role genetics plays in shaping who we are and who we will become.” Id. at 739.} However, as science progresses, the law regarding the perception of property also evolves.\footnote{See Int’l News Serv. v. Associated Press, 248 U.S. 215, 238-39 (1918) (observing advancements in technology call for reconsideration of what constitutes property). In International News Service, the defendant sued the plaintiff for pirating the Associated Press’s news before it went to press, by gathering the news via telephone and telegraph, and publishing the news in the defendant’s own newspaper. Id. at 231-32. The Court commented that the telephone and telegraph facilitated the spread of information, thus allowing easier access to information and making it easier to pirate copyright-entitled information. Id. at 237-38.}
property. The Court ruled the news has attributes of property, such as the ability to be bought and sold, and should therefore be treated as property.

International News Service represents an enduring question in property law—whether something intangible, such as information in the news, can have property rights. Justice Brandeis disagreed with the majority’s treatment of news as property because news is information and is not “property in the strict sense.” Intangible property law and intellectual property law are examples of developing property theories that are frequently used to recognize property rights in objects that are not traditionally considered property in the “strict sense.”

a. Intangible Property

The most challenging barrier to treating DNA as property is the fact that it is imperceptible to the naked eye. Nevertheless, recognition of property rights in the intangible can be traced back to James Madison, who wrote that “[i]n a word, as a man is said to have a right to his property, he may be equally said to have a property in his rights.” Madison emphasized that an individual’s rights and liberties have value, and where there is value, there is property.

87. See id. at 232 (stating issue before Court). The Court recognized that news has an abstract component that consists of substantive information, as well as a physical component that consists of the actual compilation of words. Id. at 242-43.

88. See id. at 240 (holding news information has attributes of property). The Court differentiated between treating news as property belonging to the public as opposed to competing news services vying for ownership. Id. at 240-41.

89. See Penner, supra note 74, at 715-16 (discussing courts’ struggle to determine whether intangibles can have property rights).

90. See Int’l News Serv., 248 U.S. at 255 (Brandeis, J., dissenting) (arguing against majority opinion of news as property).

91. See Weeden, supra note 65, at 637 (outlining possible categories of property applicable to genetic information). Intangible property is defined as “property that lacks a physical existence.” See BLACK’S LAW DICTIONARY 1536 (9th ed. 2009). Intellectual property regimes relevant to genetic information include copyrights, patents, and trade secrets. See Weeden, supra note 65, at 645-46. A copyright is “a property right in an original work of authorship . . . fixed in any tangible medium of expression, giving the holder the exclusive right to reproduce, adapt, distribute, perform, and display the work.” See BLACK’S LAW DICTIONARY 386 (9th ed. 2009). A patent is “the governmental grant of a right, privilege, or authority.” Id. at 1234. A trade secret is “a formula, process, device, or other business information that is kept confidential to maintain an advantage over competitors.” Id. at 1633.

92. See Weeden, supra note 65, at 638 (commenting on society’s bias toward tangible property). Weeden opines that genetic information cannot be properly protected by property law unless the societal bias for tangible property is overcome. Id. But see Hohfeld, Some Fundamentals, supra note 78, at 21 (asserting all property has intangible characteristics). Hohfeld explains that there is a “fallacious” differentiation between tangible and intangible property. Id. at 21-22. Although the term “property” is commonly used to refer to a physical object, property is more accurately a reference to the intangible rights attached to an object (e.g., the rights to possess, use, enjoy, and alienate an object). Id.


94. See id. (describing individual’s property interests in liberties). Specifically, Madison asserts that an individual has property rights in his free speech. Id.
Despite Madison’s perception of rights as property, the American cultural perception of property tends to focus on objects that are physical and identifiable.95

Gradually, courts have broadened the scope of property to include the intangible.96 The Oregon Supreme Court demonstrated that the law must adapt to advancing science when the court recognized that a “thing,” in terms of trespass law, can include gases and microscopic particles.97 State courts have also recognized that the term “property” includes more than just physical objects, but also extends to intangible entities such as rights and interests similar to Hohfeld’s and Madison’s concepts of property.98

b. Intellectual Property

In addition to treating DNA as intangible property, intellectual property is another proposed property regime that could potentially protect DNA.99 Intellectual property does not protect ideas themselves, but rather protects the expression of ideas.100 An expression of an idea is protectable under intellectual property law if it contains at least a minimum level of creativity.101 The traditional intellectual property regimes include patents, copyrights, trademarks, and trade secrets.102 The most appealing and appropriate intellectual property approach to protecting DNA is to treat it as a trade secret.103 When determining whether a trade secret exists, courts consider

95. See Weeden, supra note 65, at 638 (discussing American bias toward property rights in tangibles).
96. See Martin v. Reynolds Metals Co., 342 P.2d 790, 794 (Or. 1959) (holding invisible particles capable of constituting action for trespass).
97. See id. at 793 (reasoning law should catch up to science in recognizing molecules and particles). Prior to Martin, trespass was only considered actionable if a person caused a physical thing to enter onto another’s property. See RESTATEMENT (FIRST) OF TORTS § 158 cmt. h (1934).
98. See Fidelity & Deposit Co. of Md. v. Arenz, 290 U.S. 66, 69 (1933) (holding property includes obligation to pay debt); see also Solomon v. Solomon, 857 A.2d 1109, 1125 (Md. 2004) (upholding division of marital property may include intangible property); Bouse v. Hutler, 26 A.2d 767, 769 (Md. 1942) (holding value of property bequeathed includes intangible property for taxation purposes).
99. See Weeden, supra note 65, at 643 (analyzing applicability of intellectual property to protection of genetic information).
102. See Weeden, supra note 65, at 645-46 (listing traditional intellectual property regimes).

[I]nformation, including a formula, pattern, compilation, program device, method, technique, or process, that: (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain
whether the information is secret and whether it has competitive value. The Fifth Circuit examined these factors in \textit{E.I. duPont deNemours & Co. v. Christopher}. Similar to how a trade secret has monetary value, the case of \textit{Moore v. Regents of the University of California} demonstrates the high value of genetic information. The California Supreme Court in \textit{Moore} ruled that a patient does not have a property right in his removed tissue because the genetic information contained in human tissue is too valuable to restrict access.

2. Granting DNA Privacy Rights

The potential lucrative value of genetic information is the reason why many legal scholars are opposed to granting DNA property rights—because property law would treat genetic information as a commodity, which could have dangerous consequences. The detrimental effects of treating genetic information as a commodity are best described in the case of \textit{Greenberg v.}
Miami Children’s Hospital Research Institute, where doctors patented the Canavan gene mutation, making testing less accessible and more expensive. In light of the harmful consequences that treating DNA as property would have on an individual’s well-being, privacy law appears to be a more appropriate theory for protecting DNA.

Modern privacy law is said to be founded in Justices Warren and Brandeis’s The Right to Privacy, where they set out to disentangle privacy from property. Justices Warren and Brandeis describe the harm caused by an invasion of privacy as subjecting an individual to “mental pain and distress, far greater than could be inflicted by mere bodily injury.” The Right to Privacy paved the way for the Georgia Supreme Court to be the first court to recognize a right to privacy in 1905. The Georgia Supreme Court recognized that the right of privacy is embraced within the absolute rights of personal security and personal liberty. Thus, the scope of privacy protects some of an individual’s most vital interests that cannot be captured by property law.

The motivation behind the desire to protect DNA is not that an individual should own his genetic information, but instead, that an individual should be able to control access to his DNA. Under property law, modern technology allows an individual to separate himself from his body as evidenced by the growing market for body parts. On the other hand, privacy protects an individual holistically, extending beyond the scope of property law to

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111. See id. at 1068 (noting unfortunate commercialization of genetic information). In Greenberg, parents of children with Canavan disease provided a doctor with DNA so that he could research the disease, identify a genetic mutation, and help the public at large. Id. at 1067. Once the doctor was able to isolate the Canavan gene mutation, he obtained a patent without the patients’ consent or knowledge. Id. Consequently, access to Canavan testing became restricted to licensing agreements and royalty fees. Id.
112. See Suter, supra note 10, at 737 (advocating in favor of protecting genetic information under privacy law as opposed to property law).
114. See id. at 196 (considering need to protect right to privacy).
115. See generally Pavesich v. New Eng. Life Ins. Co., 50 S.E. 68 (Ga. 1905) (recognizing claim for invasion of privacy). The plaintiff in Pavesich brought an action against the defendant for publishing a likeness of the plaintiff in its advertisement. Id. at 68.
116. See id. at 69-71 (summarizing historical roots of right to privacy). The court in Pavesich reasoned that the right to privacy has deep roots in natural law, traceable back to the Roman’s concept of justice. Id. at 69-70.
117. See Warren & Brandeis, supra note 113, at 213 (distinguishing property law protections from privacy law protections). The right to privacy extends protection to “personal appearance, sayings, acts, and to personal relations, domestic or otherwise.” Id.
118. See Suter, supra note 10, at 767-69 (commenting on individual’s interest in controlling access to genetic information). Control invokes more than property rights; it connotes power over self-determination. Id.
119. See id. at 757 (noting already existing market for body parts).
encompass an individual’s identity and integrity.\textsuperscript{120}

United States Supreme Court precedent further shows that privacy rights warrant greater Fourth Amendment protection than property rights because an individual’s property is not protected unless the individual has a reasonable expectation of privacy.\textsuperscript{121} In \textit{Jones v. United States},\textsuperscript{122} the Court applied privacy law instead of property law in determining whether an individual has Fourth Amendment protection.\textsuperscript{123} Thus, Fourth Amendment protection hinges on privacy rights, not property rights.\textsuperscript{124}

The scope of privacy protection is also greater than property rights in terms of possible remedies available to claimants in court.\textsuperscript{125} Privacy remedies are stronger than property law remedies because privacy allows damages to be

\textsuperscript{120} See id. at 762-63 (exposing dangers of commodification of genetic information). Privacy “protects the self against modern society’s dehumanization and assault on the self.” \textit{Id.} at 762; \textit{see also} Anita L. Allen, \textit{Coercing Privacy}, 40 WM. & MARY L. REV. 723, 737-38 (1999) (discussing important values associated with right to privacy); Pamela Samuelson, \textit{Privacy as Intellectual Property?}, 52 STAN. L. REV. 1125, 1136-39 (2000) (recognizing unintended consequences of granting personal information property rights). The transferability of property rights in personal information would pose a problem when an individual decides to sell his personal information to a company to use for a specific purpose, and then the company wants to sell it to a third party for a different purpose. \textit{See Samuelson, supra, at} 1137-38.

\textsuperscript{121} See Orin S. Kerr, \textit{The Fourth Amendment and New Technologies: Constitutional Myths and the Case for Caution}, 102 MICH. L. REV. 801, 838 (2004) (contending Fourth Amendment offers less protection than privacy law). “Most existing Fourth Amendment rules in new technologies are based heavily on property law concepts, and as a result offer only relatively modest privacy protection in new technologies.” \textit{Id.}

\textsuperscript{122} 362 U.S. 257 (1960).

\textsuperscript{123} \textit{See id.} at 265-66 (granting defendant standing in motion to suppress although not property owner of premises searched). In \textit{Jones}, the defendant was staying briefly at his friend’s apartment as a guest. \textit{See id.} at 259. During the defendant’s stay, and while his friend was out of town, the police searched the apartment and seized drugs therefrom. \textit{Id.} at 258-59. The district court in \textit{Jones} denied the defendant’s motion to suppress the drugs as evidence because the defendant was only a guest and did not have any property rights in the apartment. \textit{Id.} at 259. The Supreme Court rejected the district court’s reasoning that property law dictates whether or not a person deserves Fourth Amendment protection and held that regardless of an individual’s property interest in the subject of a search and seizure, he may still have a legitimate privacy interest that affords him Fourth Amendment protection from the search and seizure. \textit{Id.} at 267. The Court rejected distinctions in interest in property as determinative of whether an individual is afforded Fourth Amendment protection. \textit{Id.} at 266; \textit{see also Kerr, supra note} 121, at 818-19 (noting Supreme Court applied broader conception of property).

\textsuperscript{124} \textit{See Kerr, supra note} 121, at 819 (explaining Fourth Amendment protection not based upon ownership interest in property subject to search). The Court in \textit{Jones} used a broader concept of property that analyzed whether the defendant was rightfully on the property. \textit{See id.} Because the defendant had permission to be on the property, his Fourth Amendment privacy expectation remained intact. \textit{See id.; see also Jones, 362 U.S. at} 267 (stating Court’s reasoning for granting Fourth Amendment protection).

\textsuperscript{125} \textit{See Suter, supra note} 10, at 812 (comparing different remedies available for claims based in property law and privacy law). If DNA is protected by property law, then injured parties can only bring a cause of action for the market value of their stolen genetic information. \textit{See id.} Under privacy law, an injured party would have several options depending on the circumstances of the DNA misuse. \textit{See id.} Claimants could sue based on their privacy interests in controlling access to their genetic information. \textit{See id.} A patient could additionally sue for breach of trust under circumstances where a doctor misuses and profits from the patient’s DNA. \textit{See id.} The dignitary harms arising from breach of trust are impossible to measure in terms of market value as required in property law. \textit{See id.} In contrast, property law does not allow for a cause of action based on “dignitary and relational harms.” \textit{See id. at} 811-13.
measured subjectively, taking into account the personal and dignitary value of
that information to the individual. 126 In contrast, property remedies are
measured objectively according to the market value, which is rigidly
evaluated. 127 Therefore, the flexibility and vastness of privacy law remedies
could offer much greater compensation to injured parties than property law. 128

C. Pending Legislation—Massachusetts Genetic Bill of Rights

On January 21, 2011, a Genetic Bill of Rights was introduced in the
Massachusetts State Legislature. 129 The bill is co-sponsored by Massachusetts
State Senator Harriette Chandler and Representative Ellen Story and has the
support of at least fifteen other Massachusetts state legislators. 130 The principal
intent behind the GBR is to create property and privacy rights in an individual’s
遗传信息。131 The GBR declares “genetic information [is] the
exclusive property of the individual from whom the information is obtained.” 132
The bill would grant Massachusetts residents significantly more rights in their
genetic information than they have under existing legislation. 133

126. See Randall R. Bovbjerg et al., Valuing Life and Limb in Tort: Scheduling “Pain and Suffering,” 83
NW. U. L. REV. 908, 912 (1989) (explaining very broad scope of noneconomic damages). The law does not
offer precise guidelines for calculating noneconomic damages resulting from personal injury. See id. at 913-14.

127. See id. at 910 (asserting measurement of economic damages “relatively straightforward”).

128. See Suter, supra note 10, at 812-13 (suggesting privacy law offers more adequate remedy for
protecting genetic information). The adequacy of a remedy is an important consideration in determining which
legal theory should protect genetic information because the possibility of harsh punishment serves as an
effective deterrent. See id. The purpose of a remedy is to rectify the wrong done and make an injured party
whole again. See id.


130. See id.; see also Pete Shanks, Massachusetts Considers Genetic Bill of Rights, BIOPOLITICAL TIMES
(Feb. 21, 2011), http://www.biopoliticaltimes.org/article.php?id=5599 (announcing introduction of GBR in
Massachusetts State Legislature); see also Bill Sponsor: MA Senate Bill 1080-187th General Court,
Massachusetts Senate Bill 1080). As of January 2012, Massachusetts state senators supporting the GBR are:
Senators Cynthia Stone Creem, Harriette L. Chandler, Patricia D. Jehlen, and Sal DiDomenico. See LEGISCAN,
supra. Massachusetts state representatives supporting the GBR are: Representatives Alice K. Wolf, Antonio F.
D. Cabral, Benjamin Swan, Carl Sciortino, Carolyn Dykema, Cleon H. Turner, Denise Provost, Ellen Story,
Franck Israel Smizik, Jay R. Kaufman, Kay Khan, Lori Ehrlich, and Theodore C. Speliotis. Id.

131. See Mass. S. 1080 (declaring purpose of bill). Section 1 of the GBR amends Section 70G of Chapter
111. See MASS. GEN. LAWS ANN. ch. 111, § 70G (2012) (regulating genetic information and reports); see also
An Act to Create a Genetic Bill of Rights: Hearing on S.B. 1080 Before the Joint Committee on Public Health,
Legislative Counsel, ACLU Massachusetts); Susan Huber & Dan Vorhaus, Genetic Bill of Rights Proposed in
Massachusetts, GENOMICS LAW REPORT (Feb. 14, 2011), http://www.genomicslawreport.com/
index.php/2011/02/14/genetic-bill-of-rights-proposed-in-massachusetts/ (describing content of GBR). The
GBR is prompted by the rapidly increasing storage and sharing of genetic information. See Hearing, supra.
The GBR recognizes that control over how an individual’s genetic information is stored and shared is a human
right. Id.

132. See Mass. S. 1080 (proposing unprecedented property rights in individual’s genetic information).

133. See Huber & Vorhaus, supra note 131 (comparing GBR to current federal and state legislation
regarding genetic information). The GBR attempts to rectify the patchwork protection for genetic information
provided by federal statutes, such as HIPAA and GINA, and the Massachusetts State Constitution. See id.; see
I. Current Laws Regarding Genetic Information

Existing law does not adequately criminalize DNA theft. Criminalizing DNA theft is crucial, because unlike other personal information—like a stolen bank account number or credit card—once an individual’s genetic information is exposed, there is almost nothing the individual can do to remedy the loss. The crime of DNA theft should consist of three elements: The thief must knowingly take an individual’s DNA, with the intent of analyzing it, and without the individual’s consent.

Massachusetts law only requires an individual’s prior written consent to perform genetic testing. Similar to the United States Constitution, the Constitution of the Commonwealth of Massachusetts does not expressly provide for a right to privacy. Also, current state and federal law does not
affirmatively address whether or not an individual has a property or privacy interest in his genetic information.\footnote{See Jeremy Gruber, GeneWatch: Massachusetts Legislature Holds Hearing on Genetic Bill of Rights, COUNCIL FOR RESPONSIBLE GENETICS, \texttt{http://www.councilforresponsiblegenetics.org/GeneWatch/GeneWatchPage.aspx?pageId=342} (last visited July 18, 2012) (comparing GBR to existing federal and state laws regulating genetic information).}

Massachusetts laws currently prohibit the use of genetic information in employment, selling bonds, insurance, granting mortgage loans, and housing.\footnote{See MASS. GEN. LAWS ANN. ch. 151B, § 4 (2012) (prohibiting discrimination based upon genetic information).} Federal legislation, such as the Genetic Nondiscrimination Act (GINA) and the Health Insurance Portability and Accountability Act (HIPAA), are perceived to be inadequate and incomplete in the scope of their protection.\footnote{See Huber & Vorhaus, supra note 131 (noting limitations of GINA and HIPAA). GINA is especially weak because it does not prohibit using genetic information to make decisions regarding long-term care, life, and disability insurance.} GINA prohibits employers and insurers from making decisions based upon an individual’s genetic information.\footnote{See GINA, Pub. L. No. 110-233, § 201(2)(B)(i), 122 Stat. 881 (2008) (defining employer by referencing 42 U.S.C. § 2000e(b)). Claimants cannot sue state employers in federal court for damages under GINA. See Erin Murphy Hillstrom, Comment, May an Employer Require Employees to Wear “Genes” in the Workplace? An Exploration of Title II of the Genetic Information Nondiscrimination Act of 2008, 26 J. MARSHALL J. COMPUTER & INFO. L. 501, 517 (2009) (noting GINA does not apply to employers with fewer than fifteen employees); see also Jessica L. Roberts, Preempting Discrimination: Lessons From the Genetic Information Nondiscrimination Act, 63 VAND. L. REV. 439, 485 (2010) (identifying enforcement problems in applying GINA to state employers).} GINA has, however, been harshly criticized for offering inadequate protections because of its several exceptions.\footnote{Joanne Barken, Note, Does the Genetic Information Nondiscrimination Act of 2008 Offer Adequate Protection?, 75 BROOK. L. REV. 545, 572-77 (2009) (analyzing GINA’s weaknesses). GINA’s protection is piecemeal because it contains several far-reaching exceptions. Id. at 576.} GINA’s regulations do not extend to federal employers, state employers, and employers with fifteen or fewer employees.\footnote{See GINA, Pub. L. No. 110-233, 122 Stat. 881 (2008); Health Insurance Portability and Accountability Act (HIPAA), Pub. L. No. 104-191, 110 Stat. 1936 (1996).} GINA’s coverage is further weakened by allowing employers to inadvertently obtain genetic information about their employees and not protecting employees from
discrimination based on manifested disorders. Critics also argue that GINA is ineffective because its definition of genetic information is broad and creates an indefinite protected class.

Similar to GINA, HIPAA is also criticized for its ineffectiveness because it does not provide a private cause of action or individual remedy. If a medical provider violates HIPAA by unlawfully releasing a patient’s medical records containing genetic information, the only remedy available is for the Department of Health and Human Services to issue a civil fine or turn the case over to the Department of Justice for criminal prosecution. In response to the inadequate coverage of GINA and HIPAA, as well as the relatively easy ability to obtain an individual’s DNA sample, Massachusetts legislators were prompted to propose a Genetic Bill of Rights to strengthen protection of genetic information in Massachusetts.

2. Genetic Bill of Rights Would Grant Property and Privacy Rights in DNA

The GBR is unprecedented legislation because it would not only require consent for extracting an individual’s DNA, but it would also expressly create property and privacy rights in DNA, which extend greater protection than any existing federal or state legislation. The proposed bill states that an

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148. See id. at 2117, 2126 (setting forth argument in favor of creating HIPAA private cause of action). Critics of HIPAA argue that it is ineffective to rely on a government agency to monitor enforcement, especially because government agencies are often tainted by political influence. Id. at 2129; see also HIPAA, Pub. L. No. 104-191, § 160.306, 110 Stat. 1936 (1996) (setting forth complaint procedure).

149. See Huber & Vorhaus, supra note 131 (indicating legislative intent behind GBR). The Massachusetts “GBR addresses perceived gaps and limitations in the coverage provided by major federal statutes . . . .” Id.; see also Gardner, supra note 7, at 52 (acknowledging legislative intent behind proposal of GBR in Massachusetts). DNA could be easily obtained from discarded cigarette butts, licked postage stamps, and used glasses of beer. Gardner, supra note 7, at 52. Collection of DNA “is a largely unchartered area, but we have to put up barriers to protect people from all these scary scenarios.” Id. (quoting Massachusetts state Senator Harriette Chandler, cosponsor of GBR); see also Joh, supra note 134, at 673 (advocating in favor of need for specific DNA theft criminal statutes). Joh explains that now it is crucial to make DNA theft a criminal offense because of the availability of cheap technology for analyzing DNA. See Joh, supra note 134, at 673. “Recreational genomics” is affordable and as easy as purchasing a kit on the internet with a credit card, following the instructions to swab some cells, mailing it to the laboratory address given, and then receiving an email containing the genetic analysis. Id.

150. See Joh, supra note 134, at 686-87 (reviewing existing federal and state DNA laws). GINA only applies to employers and insurance and does not regulate the nonconsensual-collection analysis of DNA by private persons. Id. at 686. Although about ten states in the nation make disclosure and analysis of DNA a crime, no state, besides Alaska, criminalizes nonconsensual collection of DNA and no state makes DNA theft a
individual has absolute dominion and control over his genetic information, and violations would be governed by Massachusetts property law. Unauthorized use of an individual’s genetic information would be treated as an interference with his privacy and property rights. In addition, the GBR allows for individuals to treat their genetic information like any other chattel or possession by storing it and bequeathing it to family members in their last will and testament. The GBR recognizes that an individual’s genetic information has a monetary value, and the bill requires that an individual be made aware of this material value before contracting to assign rights in his genetic information. Furthermore, if an individual contracts to allow an entity to collect his DNA, and the entity intends to gain financially from the information provided in the DNA, the entity must reveal its commercial intent and pay fair market value for the individual’s DNA.

The enforcement mechanisms in the GBR are more effective than HIPAA and GINA because its property and privacy rights would extend to everyone, it would allow for private and public causes of action, and it contains civil and criminal penalty provisions. In addition to an individual cause of action, the attorney general may seek an injunction or other equitable relief. The bill provides for an automatic $5000 in damages for a violation, and $100,000 in damages if the violator profits from the unauthorized use of an individual’s DNA. Also, the GBR amends current Massachusetts Identity Theft Law to include an individual’s genetic information, treating it as similar to an individual’s Social Security number. A violation of Massachusetts Identity Theft Law allows for a fine up to $5000 or imprisonment for up to two and a

felony. Id. at 686-87.

151. See An Act to Create a Genetic Bill of Rights, S. 1080, 187th Gen. Ct. § 1 (Mass. 2011); see also Huber & Vorhaus, supra note 131 (analyzing GBR’s grant of property rights to DNA).


153. See Mass. S. 1080 § 1(b) (addressing rights for storing and bequeathing DNA); see also Huber & Vorhas, supra note 131 (outlining GBR grant of property rights and impact on testamentary wills).

154. See Mass. S. 1080 § 1(b) (highlighting important monetary value of DNA); see also Huber & Vorhas, supra note 131 (summarizing GBR disclosure requirements).

155. See Mass. S. 1080 § 1(b) (requiring compensation for use of genetic information); see also Huber & Vorhas, supra note 131 (pointing to GBR requirements for commercial use of DNA).

156. See Mass. S. 1080 § 1 (granting “individual[s]” property and privacy rights in their genetic information); § 1(f) (allowing civil and criminal causes of action); see also Huber & Vorhas, supra note 131 (reviewing GBR enforcement provisions).


158. Id. (describing civil penalties for violating GBR); see also Huber & Vorhas, supra note 131 (considering statutory damages for violating GBR provisions).

159. Mass. S. 1080 § 16 (amending Massachusetts Identity Theft Law to include genetic information); see also Huber & Vorhas, supra note 131 (observing GBR changes state identity theft law).
A person found guilty of identity theft may also be required to pay financial restitution, which could include costs incurred in correcting the victim’s credit history, lost wages, and attorney’s fees.  

3. The Scope of the Genetic Bill of Rights

Although the scope of protection provided in the GBR is broad, it does not provide absolute protection. The GBR exempts law enforcement officials from its provisions if the officials act pursuant to their official duties. Another GBR exception appears in the bill’s definition of “genetic information.” The GBR defines “genetic information” as written or recorded information obtained and identified in a genetic test. The GBR then defines a “genetic test” as “a test of human DNA, RNA, mitochondrial DNA, chromosomes or proteins for the purpose of identifying genes, inherited, genetic mutations or acquired genetic abnormalities, or the presence or absence of inherited or acquired characteristics in genetic material.” However, the GBR exempts genetic tests conducted for the purposes of detecting alcohol and drug abuse.

Interestingly, even though the GBR was proposed as a response to the inadequate protections of current federal and state laws, critics argue that the GBR is too broad. The bill’s requirements for acquiring consent and paying compensation costs for use of an individual’s genetic information could greatly impede scientific research and development. Legislators are struggling to
strike a balance between an individual’s property and privacy rights and society’s interest in benefiting from advancements in scientific research. An improved understanding of the human genome could eventually lead to a cure or even prevention of genetic disorders. Moreover, the efficacy of the GBR would be limited in geographic scope to Massachusetts, because no other state grants such extensive property and privacy rights to genetic information.

D. Conflict of Laws in United States Criminal Procedure

The United States is unique compared to most other nations because it has parallel federal and state systems—whereby each state has police power over its people—and, as a result, each state has different criminal laws and procedures. One advantage to federalism is that it keeps government local by allowing each state to enact laws that address the specific and distinct needs of the people of that state. A disadvantage to federalism is that by empowering each state to have its own penal code, criminal procedure throughout the nation is fragmented and often inconsistent. Conflict of laws is a common problem in U.S. criminal procedure—where two states have a central connection to a crime, but the states have contradictory laws. The forum state is the state where the crime occurred, and the situs state is the state where the evidence is gathered. A conflict-of-laws assessment determines whether the forum state’s laws or the situs state’s laws should be applied in the prosecution of the crime.

The United States Constitution and the Constitution of the Commonwealth could well erect unintended barriers to the type of innovative genetic research conducted at numerous Massachusetts institutions . . . .”

170. See id. (noting “delicate line to walk” between scientific progress and genetic privacy).

171. See Allen, supra note 146, at 382-83 (indicating possibility for scientific research to one day cure or prevent genetic disorders). “When the Human Genome Project began in 1990, optimism was boundless—researchers would have the means to look for cures to diseases, doctors would provide better medical advice, and patients, armed with advanced knowledge of a predisposition for a health problem, would seek preventative care.” Id. at 383.

172. See Huber & Vorhaus, supra note 131 (noting GBR’s efficacy limited by geography).


175. See Blakesley, supra note 173, at 606-07 (discussing federalist system’s effect on fragmentation of criminal procedure in United States). As a result of the federalist system, each state has its own adjudicative procedure, enforcement mechanisms, police, prosecutors, and prisons. Id.

176. See id. (noting “tremendous” variations in state laws).

177. See BLACK’S LAW DICTIONARY 726, 1513 (9th ed. 2009) (defining terms “forum” and “situs”). Forum is defined as the “the state in which a suit is filed.” Id. at 726. Situs is defined as “the law of the place where the thing in issue is situated.” Id. at 1513.

of Massachusetts require that the accused be tried in the state and district where the crime was committed. Consequently, the general rule is that Massachusetts has jurisdiction to prosecute an individual for a crime committed within its boundaries. Conversely, criminal acts committed wholly outside of Massachusetts cannot then be prosecuted within the Commonwealth.

A conflict-of-laws assessment may occur as a result of two different scenarios in criminal cases. The first scenario would involve a forum state that has more defendant-protective laws than the situs state, while the second scenario would involve a forum state with less defendant-protective laws than the situs state. In both of these scenarios, the admissibility of evidence hinges on whether the exclusionary rule applies. The exclusionary rule is a judicially created rule intended to prevent police from committing constitutional violations, by suppressing evidence and confessions that are obtained by the police unconstitutionally.

1. Forum State Has More Defendant-Protective Laws than the Situs State

The case of Commonwealth v. Cryer is an example of how Massachusetts courts tend to rule on the admissibility of evidence gathered outside of Massachusetts when Massachusetts laws afford greater protection than the state where the evidence was gathered. In Cryer, New Hampshire police arrested the defendant for first-degree murder in Everett, Massachusetts. Massachusetts police went to New Hampshire to question the defendant. While the defendant confessed to the murder to Massachusetts police, the defendant’s attorney instructed New Hampshire police not to question the defendant without his presence. The New Hampshire police never told the

179. See U.S. CONST. amend. VI (setting forth rights of defendants in criminal prosecutions). The Sixth Amendment states, in relevant part: “In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law . . . .” Id.; see also MASS. CONST. pt. 1, art. XIII (setting forth Massachusetts rights for defendants in regard to criminal prosecutions). Article Thirteen states that “[i]n criminal prosecutions, the verification of facts in the vicinity where they happen, is one of the greatest securities of the life, liberty, and property of the citizen.” MASS. CONST. pt. 1, art. XIII.

180. See id. (denying state jurisdiction to prosecute crime committed wholly outside its boundaries).


182. See id. (describing two categories of cases in conflict-of-laws assessment).

183. See id. at 1220 (considering application of exclusionary rule in conflict-of-laws assessment).

184. See Commonwealth v. Amral, 554 N.E.2d 1189, 1193 (Mass. 1990) (explaining policy behind exclusionary rule). “Suppression is a remedy designed by the courts, as a matter of policy, to deter future police misconduct.” Id.


186. See id. at 809-10 (stating issue of case).

187. See id. at 810. 810.

188. Cryer, 689 N.E. 2d at 810-11. Before the Massachusetts police questioned the defendant, they first
Massachusetts police about the attorney’s instructions.\textsuperscript{191}

At trial in Massachusetts, the defendant moved to suppress his confession because it violated Article Twelve of the Massachusetts Declaration of Rights.\textsuperscript{192} The Supreme Judicial Court of Massachusetts denied the defendant’s motion to suppress because Article Twelve does not apply to New Hampshire police, and the Massachusetts police were not aware of the attorney’s instructions.\textsuperscript{193} The court reasoned that excluding the confession would not further the policy considerations behind the exclusionary rule because suppressing the defendant’s confession in New Hampshire would have no deterrent effect on Massachusetts police as it was the New Hampshire police who violated the defendant’s rights.\textsuperscript{194} Therefore, when Massachusetts is the forum state, and evidence is gathered in violation of a defendant’s Massachusetts state rights by a situs state’s police conduct, the evidence would still be admissible against the defendant at trial in Massachusetts.\textsuperscript{195}

2. Forum State Has Less Defendant-Protective Laws than the Situs State

The case of \textit{Commonwealth v. Miller}\textsuperscript{196} addresses a situation where the forum state has less defendant-protective laws than the state where the evidence is gathered.\textsuperscript{197} In \textit{Miller}, the defendant was charged with committing murder in Beverly, Massachusetts, and was subsequently arrested in New York by New...
York City Police. At trial in Massachusetts, the defendant filed a motion to suppress his confession because he did not have an attorney present, and in New York the right to counsel attaches when charges are filed. In contrast, under Massachusetts law, the right to counsel only attaches if the defendant invokes his right to counsel. The court held that Massachusetts law should apply because the general rule is that the law of the forum governs as to procedure and admissibility of evidence. The forum state has a superior interest to the situs state in ensuring that crimes committed within its boundaries are effectively prosecuted. Therefore, when the forum state grants less

198. See id. at *1, *3 (stating facts of case).
199. See id. at *4.
201. See N.Y. CRIM. PROC. LAW § 100.10 (McKinney 2012) (defining accusatory instrument as including felony complaint); see also Miller, 2002 Mass. Super. LEXIS 237, at *5 (comparing Massachusetts and New York criminal procedure laws regarding defendant’s right to attorney); People v. Settles, 385 N.E.2d 612, 615 (N.Y. 1978) (holding right to counsel in New York attaches upon filing of accusatory instrument); D. Christopher Dearborn, “You Have the Right to an Attorney,” But Not Right Now: Combating Miranda’s Failure by Advancing the Point of Attachment Under Article XII of the Massachusetts Declaration of Rights, 44 SUFFOLK U. L. REV. 359, 359-60 (2011) (asserting right to counsel under Massachusetts law often does not attach until defendant arraigned). In Massachusetts, unless an accused knows an attorney to call, he can go for as long as four days in custody before the court appoints him counsel. See Dearborn, supra, at 360-61.
202. See Commonwealth v. Miller, No. 01 77 CR11 69-001, 2002 Mass. Super. LEXIS 237, at *11 (Mass. Super. Ct. July 9, 2002) (denying defendant’s motion to suppress and refusing to apply New York law). The court considered the rulings of other state courts in deciding whether a forum state has to apply the laws of a situs state. Id. at *7-8. See generally People v. Saiken, 275 N.E.2d 381 (Ill. 1971) (determining when forum law governs over situs law). The court in Saiken asserted that “where a conflict occurs between the standards of two jurisdictions, there is no constitutional barrier, other than the fourth amendment (sic), which precludes one jurisdiction from refusing to honor the standards of another relative to the validity of an arrest or search.” Id. at 385. The court in Miller held that it was free to reject New York law and apply Massachusetts law as long as Massachusetts law at least satisfied Fourth Amendment requirements. See Miller, 2002 Mass. Super. LEXIS 237, at *9. See generally Burge v. Texas, 443 S.W.2d 720 (Tex. Crim. App. 1969) (considering when to apply forum law over situs law). The court in Burge concluded that forum law governs the rules of procedure and evidence, reasoning that any other approach would result in “endless perplexity.” Id. at 723; see also Saiken, 275 N.E.2d at 381 (comparing impact of procedural and substantive matters on conflict of laws). However, if the conflict-of-laws problem questions the admissibility of evidence on the grounds that it was wrongfully obtained, then the question is no longer a procedural matter, but is instead a substantive matter. Saiken, 275 N.E.2d at 385. When a substantive matter is at issue, the court will apply the “significant relationship” or “center of gravity” test to decide whether the forum state or the situs state has the greatest interest in having its law applied. Id. In considering whether the forum state or the situs state is the “center of gravity” or has the more “significant relationship” to the crime, courts consider where the crime was committed, where it will be prosecuted, where the defendant and victim are residents, and the witnesses’ locations. Id. In Miller, the court determined that Massachusetts had a more significant relationship to the crime than New York because the crime was committed in Massachusetts, both the defendant and the victim were Massachusetts residents, Massachusetts police questioned the defendant, and the crime was being prosecuted in Massachusetts. See Miller, 2002 Mass. Super. LEXIS 237, at *11.
protection than the state where the evidence is gathered, the forum state’s law will apply.204

3. Full Faith and Credit Restrictions on Conflict-of-Laws Assessment

Determining which law applies to a criminal prosecution is further complicated by the Full Faith and Credit Clause of the United States Constitution, which requires that states recognize the laws and judgments of other states.205 Although the Full Faith and Credit Clause seems restrictive, the Supreme Court has ruled its requirements are easily satisfied by a showing from the forum state that its decision to apply forum law over a situs state’s law is based on the forum’s legitimate state interest.206 For instance, a forum state always has a legitimate interest in crimes committed within its borders.207

The ease with which states can satisfy the Full Faith and Credit Clause mandate may actually jeopardize the effectiveness of both the forum and situs state’s laws.208 In situations similar to those in Cryer and Miller, the forum state’s laws are often undermined, because the police in a defendant-protective forum state may attempt to circumvent the laws of their own state by encouraging law enforcement in the less protective situs state to gather evidence which would otherwise violate the forum’s laws.209 The forum police know the forum court will give full faith and credit to the situs state’s laws, as

204. See id. at *11-14 (noting policy reasons for applying less defendant-protective forum law over more protective situs law). Forum police cannot reasonably be expected to know situs state laws. Id. at *13-14. A forum state should not be prevented from admitting evidence that is legally admissible under its laws merely to serve as a “wrist slap” to the police in the situs state who have no interest in the prosecution of the crime. See People v. Orlosky, 115 Cal. Rptr. 598, 601 (Cal. Ct. App. 1974) (holding policy behind exclusionary rule not furthered by applying situs laws).

205. See U.S. CONST. art. IV, § 1 (describing required relationships between states and methods for congressional enforcement). The Full Faith and Credit Clause states: “Full Faith and Credit shall be given in each State to the public Acts, Records, and judicial Proceedings of every other State. And the Congress may by general Laws prescribe the Manner in which such Acts, Records and Proceedings shall be proved, and the Effect thereof.”

206. See Corr, supra note 178, at 1224 (declaring Full Faith and Credit Clause not “significant barrier” to conflict-of-laws assessment). According to case law, the Full Faith and Credit Clause only requires that the forum state have a “legitimate interest” in the prosecution of crimes. Id. The forum’s interest need not be greater than the situs state’s interest, but it does have to be more than a “de minimis interest.” Id.; see also RESTATEMENT (SECOND) OF CONFLICT OF LAWS § 103 (1971) (explaining limitations on Full Faith and Credit Clause). An exception to the Full Faith and Credit Clause is when a forum state’s recognition of a sister state’s laws would cause an “improper interference” with the forum state’s laws. RESTATEMENT (SECOND) OF CONFLICT OF LAWS § 103 (1971).

207. See generally Carroll v. Lanza, 349 U.S. 408 (1955) (determining standard for satisfying Full Faith and Credit Clause requirements). The Full Faith and Credit Clause does not require subserviency from the state where the crime occurred. Id. at 414; see also Corr, supra note 178, at 1225 (extending Carroll holding to conflict of laws in criminal procedure).

208. See Corr, supra note 178, at 1227-28 (suggeting traditionally low threshold for Full Faith and Credit Clause diminishes forum and situs policies).

209. See id. The current interpretation of the Full Faith and Credit Clause drains it of “vitality” and allows forum police to encourage situs police to ignore the forum’s laws. Id.
long as the situs laws do not violate the Federal Constitution.210

Similarly, the laws of the situs state are jeopardized because the police of the situs state are more inclined to violate their state’s criminal procedure laws, as they know that the crime will be prosecuted in a state with less restrictive laws.211 The police in the situs state know that the forum state court does not have to give full faith and credit to the situs state’s laws because the forum state has a superior interest in prosecuting the crime and could thus apply its less defendant-protective laws.212 Amidst all of the confusion surrounding the conflict-of-laws assessment, it is clear that although a state may grant its citizens more extensive constitutional rights than other states, there is no guarantee that those rights will always be enforced.213

III. ANALYSIS

A. Why the Massachusetts Genetic Bill of Rights Is Ineffective

Despite the laudable intentions behind the Massachusetts GBR, the proposed legislation is seriously flawed.214 The GBR provisions are ineffective and fail to address crucial Fourth Amendment concerns regarding the collection and use of genetic information.215 The GBR exacerbates the already perplexing patchwork of legislation regulating the use of genetic information by creating significant gaps in the scope of its protection.216 The GBR exempts law

210. See Blakesley, supra note 173, at 605 (setting forth boundaries under which state can disregard another’s laws). The rights and protections guaranteed by the United States Constitution are merely the minimum that states can guarantee. Id. State constitutions are free to provide more protection than the Federal Constitution. Id. Therefore, if a forum state declines to give full faith and credit to a situs state’s laws, the forum state must still provide the amount of protection guaranteed by the Federal Constitution. See Corr, supra note 178, at 1218 (noting United States Constitution as floor for procedural protections for criminal defendants). The decision of a more defendant-protective forum state to apply the less protective situs state law is “insensitive to the realities of police work.” Id. at 1236-37.

211. See Corr, supra note 178, at 1227 (noting damage to situs state’s exclusionary rule). Because the situs state police know the evidence collected will be used in criminal prosecution in another state, they will likely disregard the rules of their own jurisdiction. Id.

212. See id. at 1221 (observing majority of courts apply forum state’s law under interest analysis).

213. See id. at 1218 (characterizing conflict of laws in criminal procedure as “trend[ing] towards disuniformity”). As long as states continue to vary in their criminal procedures, many cases will arise where “a defendant is prosecuted in one state on the strength of evidence obtained in another state.” Id.

214. See Huber & Vorhaus, supra note 131 (noting several exceptions to GBR consent and disclosure requirements); see also supra notes 162-172 and accompanying text (evaluating potential barriers to GBR efficacy).

215. See U.S. CONST. amend. IV (protecting right to freedom from unreasonable searches and seizures); see also Huber & Vorhaus, supra note 131 (noting GBR’s potential to provide excessive privacy protections to minority of individuals); supra notes 26-34 and accompanying text (studying original purpose behind Fourth Amendment and value of privacy in American society).

216. See Huber & Vorhaus, supra note 131 (noting GBR creates safe harbors for law enforcement with no protection of legitimate scientific research). “[T]he bill may be an overly protectionist ‘legislative band-aid’ that would grant excessive genetic rights and privacy protections to a minority of individuals at the expense of more meaningful commercial, scientific and clinical innovation.” Id.; see also supra notes 137-148 and
enforcement officers from its provisions, exempts genetic tests for alcohol and drug abuse disorders, and does not require that the person unlawfully taking the DNA have a specific intent to analyze the DNA.\textsuperscript{217} Also, the GBR makes a dangerous mistake by granting genetic information both property and privacy rights because these two legal theories are contradictory and counterproductive.\textsuperscript{218} The GBR is not appropriate legislation to protect genetic information.\textsuperscript{219}

1. More Patchwork Legislation

By exempting law enforcement officers from its provisions, the GBR fails to protect the exact type of government intrusion against which the Fourth Amendment was intended to guard.\textsuperscript{220} The writs of assistance cases, which triggered the inclusion of the Fourth Amendment in the Bill of Rights, involved government agents who were permitted to perform arbitrary searches of private citizens’ homes.\textsuperscript{221} As Otis stated in his argument against the writs, such arbitrary power places American citizens at the mercy of government officers.\textsuperscript{222}

The GBR’s exemption for law enforcement officers would allow police to continue to take an individual’s genetic information without a warrant.\textsuperscript{223} As long as law enforcement officers are not required to procure a warrant to obtain an individual’s DNA, they can arbitrarily collect DNA and add it to the growing government DNA database.\textsuperscript{224} There is no law preventing the police

\begin{itemize}
\item \textsuperscript{217} See An Act to Create a Genetic Bill of Rights, S. 1080, 187th Gen. Ct. § 1 (Mass. 2011) (stating exceptions for law enforcement, substance abuse, proscription of nonconsensual disclosure of genetic information).
\item \textsuperscript{218} See id. § 1 (granting individual both privacy and property rights in genetic information); see also Suter, supra note 10, at 803-11 (warning against dangers of granting both property and privacy rights in genetic information); infra notes 258-270 and accompanying text (analyzing harmful effects of combining property and privacy rights in genetic information).
\item \textsuperscript{219} See Joh, supra note 134, at 682-87 (highlighting importance of criminalizing nonconsensual DNA analysis); see also Joh, supra note 12, at 860-61 (explaining dangers of allowing law enforcement to collect abandoned DNA); Suter, supra note 10, at 803-11 (explaining dangers of treating DNA as property); Tehrani & Mednick, supra note 166, at 24-26 (considering possibility of link between genetics and crime).
\item \textsuperscript{220} See Joh, supra note 12, at 860-68 (analyzing Fourth Amendment application to police collection of DNA); see also supra notes 26-34 and accompanying text (outlining historical context behind purpose of Fourth Amendment).
\item \textsuperscript{221} See Sklansky, supra note 16, at 1743 (recognizing impact of writs of assistance cases on Fourth Amendment drafting).
\item \textsuperscript{222} See Grasso, supra note 30, at 319 (paraphrasing Otis’s oral argument against writs of assistance).
\item \textsuperscript{223} See Commonwealth v. Cabral, 866 N.E.2d 429, 433 (Mass. App. Ct. 2007) (holding no warrant needed to collect abandoned DNA); see also Monteleoni, supra note 62, at 255-57 (describing police investigative techniques for collecting abandoned DNA).
\item \textsuperscript{224} See Joh, supra note 12, at 860-68 (warning against possible police misconduct when no regulation prevents abandoned DNA collection).
\end{itemize}
from collecting DNA from everyone they possibly can in order to compile a comprehensive index of the genetic information of each and every citizen.\textsuperscript{225} The scary result is that an individual, whose DNA is found at a crime scene, even though he was not involved in any way with the crime, could be unfairly targeted by the police.\textsuperscript{226} He will have lost his presumption of innocence.\textsuperscript{227}

If the framers of the U.S. Constitution intended for individuals to be secure in their “persons, papers, houses, and effects,” then they certainly intended individuals to be secure in their genetic information.\textsuperscript{228} Arguably, genetic information is considered part of an individual’s “person,” and as such, it should require a warrant before extraction.\textsuperscript{229} Moreover, the Fourth Amendment treats an individual’s home as sacred because of its private nature.\textsuperscript{230} And genetic information is undoubtedly more sacred than the home because it contains extremely intimate and private information about an individual’s genetic makeup.\textsuperscript{231} Thus, the exemption of law enforcement officers from the GBR provisions ignores the fundamental purpose of the Fourth Amendment—freedom from tyranny.\textsuperscript{232}

Another flaw in the GBR’s scope of protection is that its definition of “genetic tests,” by excluding tests for alcohol and drug abuse, leaves a vast

\begin{itemize}
\item \textsuperscript{225} See \textit{id.} at 874 (foreseeing potential misuse of abandoned DNA by law enforcement).
\item \textsuperscript{226} See \textit{id.} (describing danger of allowing abandoned DNA collection without proper justification).
\item \textsuperscript{227} [Collection of abandoned DNA] is a backdoor to population-wide data banking. If criminal procedure law imposes virtually no restrictions over the collection of abandoned DNA, the police may collect it from anyone about whom they have only a vague suspicion, or none at all. While discretion is an inevitable aspect of police work, the risk of discriminatory treatment or harassment by the police surely increases when no legal justification for their actions is required.
\item \textsuperscript{228} See \textit{id.} at 874 (noting intrusivefulness of DNA testing and constitutional invasion of privacy concerns). “[T]he question is: Why, if you are arrested, should you all of a sudden be treated like somebody who has been convicted of a crime?” \textit{id.} (quoting Sheldon Krimsky, professor at Tufts University).
\item \textsuperscript{229} See \textit{U.S. Const.} amend. IV (guaranteeing freedom from unreasonable searches and seizures); see also supra note 26 and accompanying text (outlining specific text and protection of Fourth Amendment); supra note 52 and accompanying text (asserting individual’s home as definitively protected by Fourth Amendment). DNA reveals extensive amounts of information about a person. See Persky, \textit{supra} note 8, at 16 (noting privacy rights advocates argue DNA extraction requires Fourth Amendment protection).
\item \textsuperscript{227} See \textit{U.S. Const.} amend. IV (granting private home utmost protection); see also \textit{Kyllo v. United States}, 533 U.S. 27, 40 (2001) (holding use of sense-enhancing technology to search interior of home unconstitutional). The \textit{Kyllo} Court reasoned that “‘[a]t the very core’ of the Fourth Amendment ‘stands the right of a man to retreat into his own home and there be free from unreasonable governmental intrusion.’” \textit{Kyllo}, 533 U.S. at 31; see also supra note 52 and accompanying text (describing protection afforded to home).
\item \textsuperscript{229} See \textit{id.} at 859 (explaining government collection of DNA as “problem worthy of serious attention”). Joh describes DNA as being part of an individual’s person. \textit{id.}
\item \textsuperscript{230} See \textit{Kyllo}, supra note 26, and accompanying text (asserting individual’s home as definitively protected by Fourth Amendment).
\item \textsuperscript{231} See Markett, \textit{supra} note 11, at 208 (pointing to important role genes play in shaping an individual).
\item \textsuperscript{232} See \textit{Sklansky}, supra note 16, at 1740 (considering historical context in which Fourth Amendment written); see also supra notes 29-34 and accompanying text (studying impact of writs of assistance cases on framers of U.S. Constitution).
\end{itemize}
number of individuals exposed.\textsuperscript{233} As a consequence, when an individual is suspected of committing a crime, but the police do not have probable cause to arrest, it is foreseeable that the police will obtain the individual’s DNA and then analyze it for a genetic disorder related to alcohol and drug abuse.\textsuperscript{234} If the individual’s DNA is positive for a predisposition to alcohol and drug abuse, the police may then try and use this genetic information to establish probable cause that this individual committed the crime because his genes show that he has a tendency towards criminal behavior.\textsuperscript{235}

However, scientific research has made clear that genes do not necessarily control an individual’s behavior.\textsuperscript{236} Environmental factors also play an important role in an individual’s behavior.\textsuperscript{237} Allowing an individual’s DNA to be tested for a predisposition to alcohol and drug abuse would lead to a deterministic society where people are not judged based on their actions, but rather based on their genetic makeup.\textsuperscript{238}

Furthermore, the language of the GBR does not explicitly require the person unlawfully taking the DNA to have a specific intent to analyze it.\textsuperscript{239} The GBR prohibits disclosure of an individual’s genetic information, but does not prohibit analysis of the genetic information.\textsuperscript{240} Consequently, anyone can obtain an individual’s DNA without his consent and then analyze the DNA to obtain the individual’s genetic information, without disclosing the


234. See Joh, supra note 12, at 874 (suggesting absence of law regulating police collection of abandoned DNA encourages such collection).

235. See Beecher-Monas & Garcia-Rill, supra note 13, at 306-07 (criticizing judges’ tendency to admit genetic predictions of future dangerousness). Beecher-Monas and Garcia-Rill critique admissibility of evidence showing a genetic predisposition for dangerousness: Admissibility of genetic predictions of future violence “is astonishing in a system that embraces the tenet that only facts having rational probative value should be admissible in the search for truth. Yet judges continue to admit predictions that no one seriously argues can meet these standards.” Id.; see also Tehrani & Mednick, supra note 166, at 26 (examining possible link between genetic predisposition for alcoholism, drug abuse, and criminal behavior).

236. See Tehrani & Mednick, supra note 166, at 24 (recognizing environmental factors also play important role in individual’s behavior). Tehrani and Mednick highlight the various factors that influence an individual’s behavior:

Genes alone do not cause individuals to become criminal. Moreover, a genetic predisposition towards a certain behavior does not mean that an individual is destined to become a criminal. The notion that humans are programmed for certain behaviors fails to acknowledge important environmental factors which are likely to mediate the relationship between genetics and crime.

Id.

237. See id. (offering examples of how environmental factors influence behavior). Despite a genetic predisposition for alcoholism and violence, a positive family environment could neutralize that genetic trait.

Id.

238. See id. (stressing inaccuracy of judging individual based on genetics alone).


240. See id.
The analysis of DNA is the most detrimental aspect of DNA theft because once a person knows an individual’s genetic information he can discriminate against that individual based on his genetic information, without ever disclosing the information.

Specific intent to analyze DNA is crucial to a charge of DNA theft because otherwise practically anyone could be charged with the crime. Humans leave traces of their DNA everywhere: in clothing, combs, and garbage. In a common scenario where a friend takes an individual’s baseball hat, under the GBR, if the individual’s DNA is on the hat, the friend could be charged with DNA theft. Therefore, without specifying that the person taking the DNA have a specific intent to analyze the genetic information, people who inadvertently obtain another individual’s DNA would be subject to criminal charges. The GBR lacks any specificity regarding the point at which obtaining DNA becomes a crime, and this greatly undermines the effectiveness and validity of the legislation.

2. Combining Privacy and Property: Mixing Oil and Water

The Massachusetts GBR is also ineffective because it attempts to grant an individual both privacy and property rights in his genetic information, which is an incompatible combination. Applying the Hohfeldian framework to DNA would allow genetic information to be treated as property because a person has rights, powers, privileges, and immunities in his DNA. A person undoubtedly has a right to possess his DNA as it is physically located in his cells and is used to determine his genetic makeup such as his hair and eye

241. See Joh, supra note 134, at 679-80 (cautioning genetic analysis poses most serious harm).
242. See id. at 679 (recognizing invasion of privacy occurs when DNA analyzed without consent, regardless of disclosure). As long as the law does not prohibit DNA analysis, a person can obtain an individual’s DNA, and then blackmail the individual without ever disclosing the genetic information. Id. at 680.
243. See id. at 690-91 (explaining importance of requiring specific mental state for DNA theft).
244. See Gardner, supra note 7, at 51 (explaining individuals leave DNA traces everywhere). “‘If you smoke a cigarette and drop it or if you go to the barbershop and your hair is cut, you are leaving your DNA behind.’” Id. (quoting Jules Epstein, law professor at Widener University).
245. See Joh, supra note 134, at 690-91 (offering example of DNA inadvertently obtained in everyday interactions). DNA could easily be obtained from common items such as used dental floss, ear wax, electric razor clippings, and chewed gum. Id. at 690.
246. See id. at 690-91 (explaining effect of criminalizing DNA theft without requiring specific mental state).
247. See id. (explaining specific mental state requirement avoids unnecessarily targeting individuals who innocently obtain another’s DNA).
248. See An Act to Create a Genetic Bill of Rights, S. 1080, 187th Gen. Ct. § 1 (Mass. 2011) (granting individuals property and privacy rights in genetic information); see also Suter, supra note 10, at 803-11 (cautioning against granting individual both privacy and property rights in DNA).
249. See Valerio Barrad, supra note 74, at 1050 (noting relationship between person and DNA has characteristics of property interests).
color. Although very difficult, an individual has power to restrict access by others to his DNA by controlling the disposal of his hair and bodily fluids. Next, an individual has privileges in regard to his DNA because he can refuse to comply with a request to extract his DNA sample. Finally, an individual also has immunity in regard to his DNA because he cannot be compelled to give his DNA to others.

The compilation of genetic information contained in DNA could possibly meet the secrecy and competitive value requirements to be considered a trade secret. Similar to how the competitors in E.I. duPont deNemours & Co. kept their method for manufacturing methanol secret, an individual could be deemed to keep his genetic information secret by not voluntarily submitting a blood sample. Also similar to how the competitors in E.I. duPont deNemours & Co. valued the plant’s secret method for manufacturing methanol, an individual’s genetic code is highly valued by pharmaceutical companies that are already investing millions of dollars in biotechnology research.

Privacy rights are an appealing approach to protecting DNA because a right to privacy is the shield that protects individuals from government interference with their everyday lives. Understandably, granting both property and privacy rights to genetic information appears ideal. Upon closer scrutiny,

250. See id. (analyzing individual’s right in DNA). An individual has a right to possess and use his DNA without the threat of others altering his genetic makeup. Id. at 1058. An individual’s right to possess his DNA creates “a correlative duty in others to avoid interrupting that person’s use, such as by irradiating the person and risking genetic change.” Id.

251. See id. (analyzing individual’s power over DNA). A person has power over his DNA because he can decide to give his DNA to his offspring or donate it to a sperm bank. Id. An individual’s offspring or the sperm recipient from the sperm bank “has a correlative liability that the legal relationship between the donor and the recipient will be altered by such an act.” Id.

252. See id. (examining individual’s privilege in DNA). An individual has a privilege in his DNA because he can refuse to give it away by refusing to give blood, hair, or tissue samples. Id. As a result, the person requesting a DNA sample has a correlative duty not to compel such a sample. Id.

253. See Valerio Barrad, supra note 74, at 1050-52 (considering individual’s immunity in DNA). An individual has immunity in his DNA because he cannot be forced to donate his genetic material, even if his DNA is needed to save the lives of others. Id. at 1051. Consequently, other people who may benefit from the individual’s DNA have a correlative disability from requiring an individual to donate his DNA. Id. at 1058.

254. See UNIFORM TRADE SECRETS ACT § 1(4) (2011) (describing trade secret as “formula, pattern, or compilation”); see also GENOMEWEB, supra note 103 (proposing trade secret model as ideal for protecting genetic information). The trade secret model would offer individuals control over who gains access to their genetic information by requiring an individual’s consent before his genetic information could be used. See GENOMEWEB, supra note 103. Additionally, after consent is given, the genetic information must still remain secret. Id.

255. See 431 F.2d 1012, 1016 (5th Cir. 1970) (describing precautions taken to keep manufacturing method secret); see also GENOMEWEB, supra note 103 (stressing need for individual’s informed consent before granting access to genetic information).

256. See Krimsky, supra note 108, at 19 (emphasizing rapid potential for financial gains with access to DNA); see also UNIFORM TRADE SECRETS ACT § 1 (2011) (requiring economic value to qualify as trade secret).

257. See Suter, supra note 10, at 764-66 (distinguishing privacy from property rights); see also supra notes 112-119 and accompanying text (emphasizing privacy law protections stronger than property law).

258. See Suter, supra note 10, at 803-04 (introducing idea of granting both privacy and property rights to
however, the combination of privacy and property becomes calamitous. Granting both privacy and property rights would be counterproductive and potentially cause even greater harm. Privacy protection of DNA will result in a higher market value for such information because when information remains secret, it is valued more. Someone in a desperate financial situation, perhaps a patient overwhelmed by medical bills, might be convinced to sacrifice her privacy rights in exchange for money by allowing doctors to use her genetic information for research and profit. The GBR explicitly refers to genetic information as a commodity by requiring that individuals be made aware their genetic information has material value. Property rights and privacy rights cannot coincide in protecting DNA because of the risk that individuals will be coerced into selling their genetic information, essentially selling access to their identity.

Protecting genetic information under property law would convert an individual’s DNA into an object of ownership, separate from the individual, and capable of being owned and controlled by someone else. DNA contributes immensely to an individual’s unique characteristics and overall identity. Commodification of DNA would essentially permit an individual’s identity to be bought and sold. As price tags are attached to personal identity, an individual loses his sense of bodily integrity because he associates himself with a monetary value rather than recognizing his true self-worth as a genetic information).

259. See id. (warning combination of privacy and property law ineffective and harmful). Property law and privacy law grant different but equally desired protections, so it is only natural to consider granting individuals “maximum protection in their genetic information by granting them both property and privacy rights.” Id. at 803.

260. See id. at 803-04 (opining property and privacy rights together ineffective to protect DNA). Treating genetic information partially as property and partially as subject to privacy will cause individuals to concentrate more on the possible financial gains in selling their genetic information, as opposed to viewing their genetic information in terms of its dignitary value. Id. at 808.

261. See id. at 804-05 (commenting on increased value of information when maintained as secret). Granting privacy rights to genetic information would result in an increased demand to purchase such secret information. Id. at 804.

262. See Suter, supra note 10, at 805 (stressing individual might make inappropriate decisions if motivated by financial gains). Suter is specifically concerned with the doctor-patient scenario because the patient and doctor will bargain over medical care instead of concentrating on what is best for the patient. Id. at 806.


264. See Suter, supra note 10, at 807 (discouraging combination of privacy and property rights); see also Allen, supra note 120, at 738-40 (indicating importance of privacy to individual’s self-worth). “Privacy has value relative to normative conceptions of spiritual personality, political freedom, health and welfare, human dignity, and autonomy.” Allen, supra note 120, at 738.

265. See Rao, supra note 68, at 444-45 (cautioning against treating genetic information as property).

266. See Markett, supra note 11, at 208 (noting “highly personal” nature of information contained in DNA); see also Suter, supra note 10, at 737 (pointing to important role genes play in shaping sense of self).

267. See Rao, supra note 68, at 428-29 (discussing danger of allowing commodification of DNA).
The monetary issue became evident when doctors at the Miami Children’s Hospital viewed their patients’ genetic information as a mere commodity by charging expensive royalty fees for Canavan testing. In strong contrast, the patients’ families associated a much more profound personal value with the testing because it determined the fate of their children’s health and future. By restricting access to testing, individuals who cannot afford testing tragically lose a sense of self-worth.

B. The Ideal Genetic Bill of Rights

Despite the several flaws in the Massachusetts GBR, the essential purpose behind the legislation, protecting the privacy of genetic information, is still worthwhile. Science will inevitably continue to explore and gain a better understanding of genetics and the role it plays in shaping an individual. Many individuals feel threatened by the advancements in genetics and are scared that DNA will eventually expose private aspects of their lives. The ability of DNA to reveal one’s future health risks, temperament, capacities, and physical appearance makes individuals vulnerable to discrimination, stigmatization, and overall unwanted exposure. Thus, legislation to protect
DNA is essential to safeguarding basic human rights.276 The ideal GBR would not leave any holes or blanket exemptions.277 In particular, law enforcement should not be exempt from respecting an individual’s genetic privacy.278 Additionally, the ideal GBR would ban testing for genetic disorders involving potential alcohol or drug abuse, which would otherwise allow police to target a person based on his genetics rather than his conduct.279 An effective GBR would also make DNA theft a specific-intent crime by prohibiting the act of analyzing an individual’s DNA without his consent.280 Importantly, the ideal GBR would protect DNA with privacy rights, and only privacy rights.281 Unlike property rights, which would treat DNA as a commodity, privacy rights offer stronger Fourth Amendment protection and greater legal remedies.282 Thus, a carefully crafted GBR that guards against all threats to genetic privacy is essential to preserving an individual’s Fourth Amendment privacy interests.283

C. Even the Ideal Genetic Bill of Rights Cannot Survive the Conflict of Laws

Unfortunately, even the ideal GBR would be ineffective in cases where a crime involves more than one state.284 If Massachusetts criminalizes DNA theft, then Massachusetts would likely be considered a defendant-protective forum state.285 Similar to the outcome in Cryer, where Massachusetts’s Article Twelve rights were not applied to evidence gathered in New Hampshire, the GBR would not apply to DNA collected out of state.286 Consequently, when a

276. See Gruber, supra note 139 (asserting that protection of genetic privacy advances human rights).
277. See Joh, supra note 12, at 862 (exposing lack of regulation of abandoned DNA use and collection).
278. In cases involving ‘abandoned DNA,’ however, the police have been able to retrieve the most detailed genetic information, without being subject to the criminal procedure rules that normally apply to searches and seizures. Id.; cf. supra note 49 and accompanying text (summarizing Massachusetts’s position on expectation of privacy in DNA).
279. See Joh, supra note 12, at 860-61 (explaining dangers of allowing law enforcement to collect abandoned DNA); see also supra note 62 and accompanying text (discussing police investigative techniques when using abandoned DNA).
280. See Suter, supra note 10, at 803-11 (explaining dangers of treating DNA as property).
281. See supra Part II.B.2 (comparing property and privacy protections for DNA).
282. See Gruber, supra note 139 (stressing need for comprehensive legislation to protect genetic information); see also Joh, supra note 12, at 866-68 (arguing abandoned DNA should invoke Fourth Amendment protection).
283. See Huber & Vorhaus, supra note 131 (noting efficacy of Massachusetts GBR limited by geography); see also Blakesley, supra note 173, at 606-07 (discussing federalist system’s impact on fragmentation of United States criminal procedure).
284. See supra notes 177-179 and accompanying text (explaining difference between application of forum and situs state criminal procedure laws).
crime is committed in Massachusetts, and the suspect is located out of state, DNA collected from the suspect would still be admissible at trial in Massachusetts, even if the out-of-state police collected the DNA in violation of the GBR.\textsuperscript{287} The DNA sample would be admissible, even though it violated the GBR, because of the policy considerations behind the exclusionary rule.\textsuperscript{288} Courts exclude unconstitutionally seized evidence in order to deter police misconduct.\textsuperscript{289} In a situation where DNA is collected by out-of-state police, in violation of the GBR, suppression of the DNA would not have a deterrent effect on Massachusetts police because they did not collect the evidence.\textsuperscript{290} A Massachusetts court would further reason that out-of-state police cannot possibly be expected to know and follow Massachusetts law.\textsuperscript{291}

The Massachusetts GBR would also not apply to Massachusetts police collecting evidence in Massachusetts to be used in an out-of-state trial.\textsuperscript{292} If Massachusetts criminalizes DNA theft, then it would likely be considered a defendant-protective situs state.\textsuperscript{293} Similar to the situation in Miller, if a Massachusetts resident is suspected of committing a crime in another state that does not criminalize DNA theft, and Massachusetts police collect his DNA in violation of the GBR, his DNA sample would still be admissible at an out-of-state trial.\textsuperscript{294} An out-of-state court would likely follow the general rule that the law of the forum state governs as to procedure and admissibility of evidence.\textsuperscript{295} The out-of-state court would emphasize that it has a superior interest in

\textsuperscript{287} See supra notes 187-192 and accompanying text (explaining circumstances when Massachusetts rights do not apply at trial in Massachusetts).

\textsuperscript{288} See Cryer, 689 N.E.2d at 813 (stating court’s reasoning for not applying Massachusetts law to out-of-state police conduct).


\textsuperscript{290} See supra notes 194, 197 and accompanying text (discussing application of exclusionary rule in context of conflict-of-laws analysis).

\textsuperscript{291} See Corr, supra note 178, at 1228-29 (acknowledging reality of difficult police work).

In the best circumstances, the police have a rather formidable task. Even when the only exclusionary rules they must learn are those of their own state plus applicable federal rules, it must be difficult for individuals with little formal legal training to track the twisting, confusing course of judicial decisions that regulate searches and interrogations. The problems increase geometrically if police are also required to know the law of other potentially interested states.

\textsuperscript{292} See supra notes 197-204 and accompanying text (considering scenario where situs state criminal procedure provided more defendant protection than forum state).

\textsuperscript{293} See Joh, supra note 134, at 686-87 (surveying states with DNA theft laws). Only ten states have passed laws that could potentially be considered to criminalize DNA theft. Id. at 686.


prosecuting crimes committed within its borders. The GBR’s ineffectiveness in out-of-state trials might also cause Massachusetts police to intentionally ignore the GBR, if the police know that a crime will be tried under a different state’s laws. As a result, any GBR in Massachusetts would be greatly undermined by other states’ less protective and conflicting laws.

IV. CONCLUSION

DNA exposes volumes of intimate information about an individual’s genetic composition. The most frightening aspect of DNA is that scientists are still trying to understand its significance. There is uncertainty as to what types of information DNA could potentially reveal about an individual, such as an individual’s propensity to commit crime, become an alcoholic, or abuse drugs. DNA could even predetermine an individual’s intellectual and physical capacity. The unknown information that DNA could potentially reveal is frightening.

The intent behind the Massachusetts GBR is admirable. In a world where technology is advancing at lightning speed, there is a vital need to protect genetic information from misuse. One of the most valued principles in the United States, implied in the Fourth Amendment, is the right to be left alone. Americans are free to make their own decisions about what career to pursue, whom to marry, where to live, and how to conduct their daily lifestyles. Without legislation protecting the privacy of genetic information, it could be used to predetermine every aspect of an individual’s life.

Nevertheless, appropriate legislation protecting DNA must not treat an individual’s DNA as a commodity. Instead, DNA should be protected by privacy law in order to preserve an individual’s bodily integrity and unique identity. Effective legislation would not permit exemptions for law enforcement because, as the history behind the Fourth Amendment shows, governments have a natural tendency to intrude upon individuals’ privacy. Also, effective legislation would not allow an exemption for testing for a genetic predisposition to alcohol and drug abuse because that would, again, allow the government to intrude upon an individual’s private life by targeting certain individuals as automatic criminal suspects. Properly drafted legislation must prohibit the analysis of DNA, not just the disclosure of the genetic information it contains, because serious harm could be done to an individual

296. See Miller, 2002 Mass. Super. LEXIS 237, at *11 (discussing factors considered in determining whether forum state has superior interest).
297. See Corr, supra note 178, at 1227 (suggesting harm to situs state laws when police know less protective forum laws will apply).
298. See id. at 1218 (opining inconsistent criminal procedure laws throughout country diminish strength of individual state laws); see also supra Part II.D (detailing intricacies of conflict-of-laws analysis in United States criminal procedure).
even without the act of disclosure.

Unfortunately, even a perfectly drafted GBR, enacted in Massachusetts, would still be rendered ineffective because of the inconsistencies in state laws throughout the United States. Nevertheless, just as the Bill of Rights is largely based on the Massachusetts’s Declaration of Rights, a well-crafted Massachusetts GBR could pave the way for a federal GBR, which would extend to all Americans, effectively preserving the right to be left alone.

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